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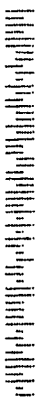
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,006	11/19/2003	Ronald Alexander (Scot) Young	10710-01	8755

7590

09/08/2005

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**OIPE/AP**

**OCT 17 2005**

EXAMINER
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CHIN, RANDALL E

ART UNIT	PAPER NUMBER
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1744

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

*KL*

## Office Action Summary

Application No.

10/718,006

Applicant(s)

YOUNG, RONALD ALEXANDER  
(SCOT)

Examiner

Randall Chin

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.                                                |

Art Unit: 1744

## **.DETAILED ACTION**

### ***Double Patenting***

1. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

2. Claims 1-14 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-12, 14 and 16 of copending Application No. 10/864,961.

This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

### ***Specification***

3. The disclosure is objected to because of the following informalities:

On p. 2, lines 19-21 should be clear as to exactly where the dirt receiving element 6 is located as the present language is confusing (see Fig. 2).

On p. , line 21, "in use" here makes the description awkward.

On p. 3, line 20, the addition of the term "residential" constitutes **new matter** and should be deleted.

Appropriate correction is required.

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The abstract of the disclosure is objected to because on line 5, the phrase "in use" here is awkward. Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

4. Claims 1, 4 and 13 are objected to because of the following informalities:

Claim 1, line 2, "on or in the container" is an alternative expression rendering the claims vague and indefinite since it is unclear what Applicant intends the claimed invention to be. The same objection holds for claim 18.

Claim 1, lines 4-7, it should be clear as to exactly where the dirt receiving element is located. In Fig. 2, the dirt receiving element 6 is located in the **first** compartment 4, however, the present claim language is confusing as to this matter.

Claim 1, line 5, this recitation of "in use" makes the claim awkward and confusing.

Claim 4, line 2, correct "the said".

Claim 13, line 3, "element or device" is awkward and deemed redundant.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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6. Claims 1, 2 and 6-13 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 03/065869 (hereinafter WO '869).

As well as claim 1 is understood, WO '869 discloses cleaning equipment comprising a container 10 for cleaning liquid (p. 3, line 27), a wringer 12 mounted on or in the container, a partition element (Figs. 2, 3 or 5 but not explicitly labeled) dividing the container into a first compartment 15 which, in use, receives liquid wrung out in the wringer and a second compartment 16 which, in use, receives cleaning liquid and a "dirt receiving element" which can be sump filter 22 (left side of Fig. 3) or filter element 20 (or 44) for receiving dirt settling from the cleaning liquid in use contained in the second compartment. The recitation of receiving cleaning liquid and "in use" is merely functional and merely would involve an intended use. Again, claim 1 is unclear as to where exactly this "dirt receiving element" is positioned.

As for claim 2, the partition element still has a part "defining" the base of the second compartment 16.

As for claim 6, the first and second compartments communicate with one another via the dirt receiving element 20 (p. 3, lines 28-29).

As for claim 7, to an extent, deflector 21 (Fig. 2) could also serve as the partition element which is clearly removable from the container to facilitate cleaning thereof.

As for claim 8, the form and structure of the dirt receiving element 20 (or 44) is deemed a three-dimensional fibrous mesh structure (Figs. 6-11).

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As for claim 9, the dirt receiving 20 (or 44) element comprises a mat or pad of superposed mesh layers (Figs. 6, 7, 9 or 10). Grilles (or mesh) 52 can be seen in cross-section in Fig. 7.

As for claim 10, the dirt receiving element (alternative filter arrangement shown in Figs. 9 and 10) teaches use of felt filter 74 which is a non-woven unitary mesh comprising a "jumble" interlocking fibers.

As for claim 11, the dirt receiving element 20 (or 44) is deemed a reusable unit which can be replaced in the container after removal (p. 1, line 31) therefrom and washing out of the collected dirt.

As for claim 12, the wringer is a basket-type wringer (Fig. 2).

As for claim 13, the container is also a cleaning bucket "for use with a hand-held cleaning element or device" (merely a functional recitation).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO '869 in view of Koontz '041.

WO '869 teaches all of the recited subject matter as recited above with the exception of the container being transparent. Koontz '041 teaches cleaning equipment

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including a wringer (col. 1, lines 15-23) wherein a barrel or container A is transparent (col. 2, lines 35-39). It would have been obvious to one of ordinary skill in the art to have modified the WO '869 container such that it is transparent as taught by Koontz '041 in order to more readily view the liquid level therein and for replacement/cleaning purposes.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-6, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by GB 2 323 776 (hereinafter GB '776).

As well as claim 1 is understood, GB '776 discloses cleaning equipment comprising a container for cleaning liquid, a squeezer or wringer 3 mounted on or in the container, a partition element 4 dividing the container into a first compartment 11 which, in use, receives liquid wrung out in the wringer and a second compartment 9 which, in use, receives cleaning liquid and a "dirt receiving element" defined by filter 14 for receiving dirt settling from the cleaning liquid in use contained in the second compartment. The recitation of receiving cleaning liquid and "in use" is merely functional and merely would involve an intended use. Again, claim 1 is unclear as to where exactly this "dirt receiving element" is positioned.

As for claim 2, the partition element 4 still has a part "defining" the "base" of the second compartment 9 in a broad regional sense.

As for claim 3, said part of the partition element 4 is apertured at 7 (see Fig. 1)



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As for claim 4, the dirt receiving element is located below an apertured part 10 of the partition element.

As for claim 5, the dirt receiving element 14 is deemed secured to the underside of the said apertured part of the partition element as shown in Fig. 1.

As for claim 6, the first and second compartments communicate with one another via the dirt receiving element 14.

As for claim 12, the wringer is a basket-type wringer.

As for claim 13, the container is also a cleaning bucket "for use with a hand-held cleaning element or device" (merely a functional recitation).

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references to GB '691, Rousey, Marston, Sorrells, Evrard, Young, and Brennan are relevant to various mop wringer and mop container arrangements.

11. Any inquiry concerning this communication or earlier communication from the Examiner should be directed to Randall Chin whose telephone number is (571) 272-1270. The Examiner can normally be reached on Monday through Thursday and every other Friday.

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If attempts to reach the Examiner are unsuccessful, the Examiner's supervisor, John Kim, can be reached at (571) 272-1142. The number for Technology Center 1700 is (571) 272-1700.

The central fax number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



R. Chin



Randall Chin  
Primary Examiner  
Art Unit 1744

<b>Notice of References Cited</b>	Application/Control No. 10/718,006	Applicant(s)/Patent Under Reexamination YOUNG, RONALD ALEXANDER	
	Examiner Randall Chin	Art Unit 1744	Page 1 of 1

#### U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-2005/0076465	04-2005	Rousey, Barry	015/264
	B	US-2,865,041	12-1958	KOONTZ MARRS F	15/264
	C	US-4,135,269	01-1979	Marston, Laurel L.	15/4
	D	US-4,161,799	07-1979	Sorrells, Weldon B.	15/260
	E	US-4,798,307	01-1989	Evrard, William E.	220/501
	F	US-4,878,264	11-1989	Young, Ronald A.	15/264
	G	US-6,279,195	08-2001	Biggs, Blyth S.	15/261
	H	US-6,560,815	05-2003	Brennan et al.	15/260
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

#### FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N	2 260 691	04-1993	Great Britain		
	O	2 323 776	10-1998	Great Britain		
	P	WO 03/065869	08-2003	WIPO		
	Q					
	R					
	S					
	T					

#### NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

# (12) UK Patent Application (19) GB (11) 2 260 691 (13) A

(43) Date of A publication 28.04.1993

(21) Application No 9219444.8

(22) Date of filing 14.09.1992

(30) Priority data  
(31) 9122537

(32) 24.10.1991

(33) GB

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(51) INT CL<sup>5</sup>  
A47J 47/18

(52) UK CL (Edition L)  
A4A AK APE  
A4F FD13 FEB99 FEF11 FFB226 FHA

(56) Documents cited  
GB 1520839 A GB 0606923 A GB 0556053 A  
GB 0502511 A GB 0398940 A GB 0334723 A  
US 4161799 A

(58) Field of search  
UK CL (Edition K) A4A AG AK APE, A4F FHA, B6D  
DSC1 DSC2  
INT CL<sup>5</sup> A47J

(54) Liquid container provided with a filter

(57) A liquid container (10) for use in cleaning operations is formed with two adjacent compartments (18, 20) which are in fluid communication via a filter member (24). A mop wringing top (26) is fitted over compartment (20) which receives dirty water. The clean water in compartment (18) is replenished by returned water delivered to compartment (20) and cleaned by the filter member (24) during its transit to compartment (18).

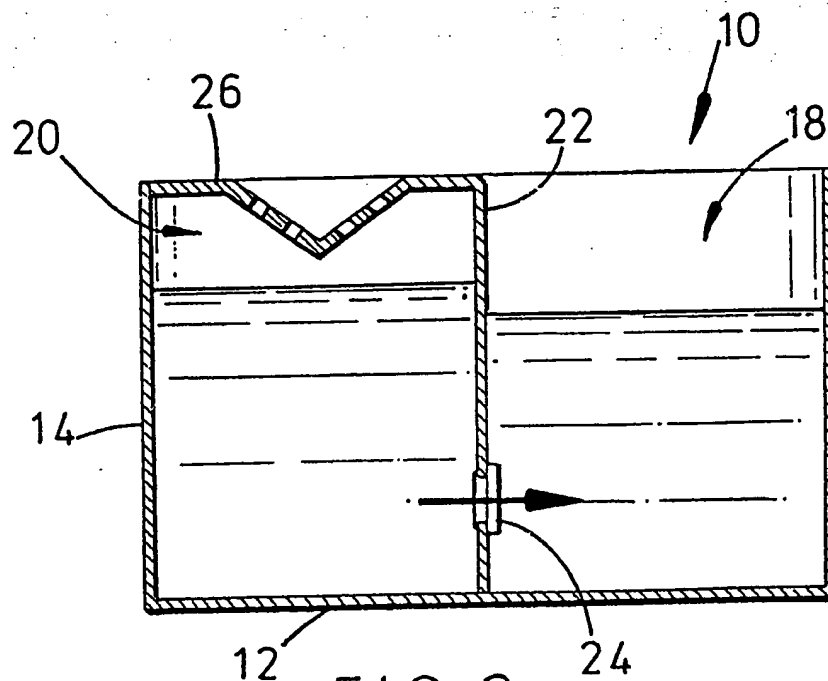
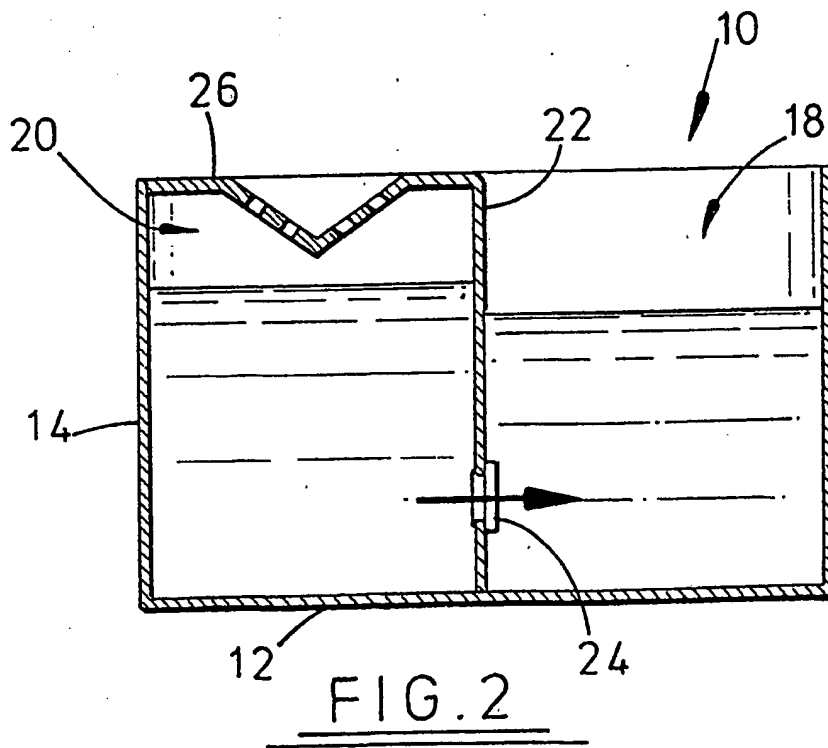
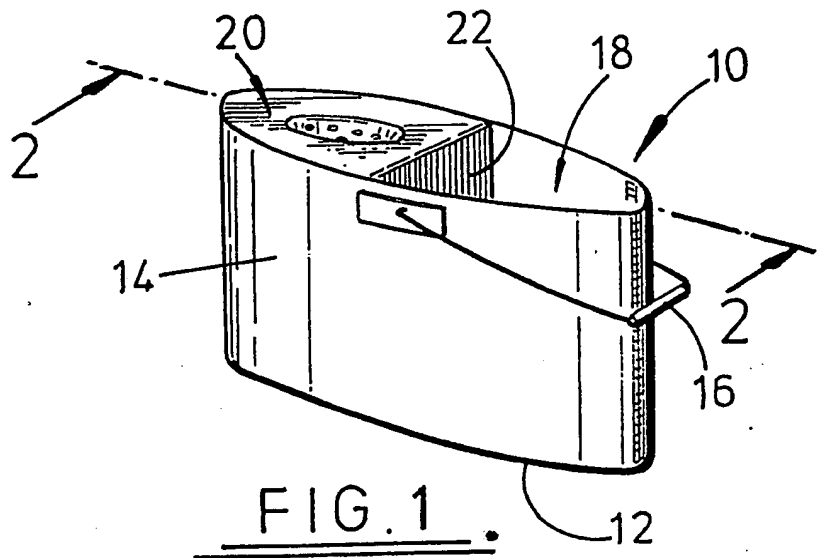


FIG. 2

GB 2 260 691 A



- 1 -

## LIQUID CONTAINER

This invention relates to a liquid container, and in particular but not exclusively to a water container for use in cleaning operations.

Many cleaning operations which are carried out by hand involve the use of water. For convenience, the water is normally contained in a bucket or pail from which an operator will wet a sponge or mop. After the cleaning operation, for example the mopping of a floor, the mop, carrying dirty water lifted from the floor, is wrung out into the bucket. The operations continue until the water in the bucket become too dirty for efficient cleaning and has to be replaced. Replacing the water may take some time, particularly if the water drain and faucet (tap) are a significant distance from the area being cleaned. Also, the emptying, filling, and carrying of a water filled bucket can be quite strenuous.

It is an object of the present invention to obviate or mitigate the abovementioned disadvantages.

According to the present invention there is provided a container for containing liquid, the container comprising two open-topped compartments, and means providing for liquid communication between the compartments when the container is in use, said means incorporating a filter member.

In use, the liquid container may be used in a cleaning operation for storage of a washing liquid, typically water. Both compartments of the container are initially filled with clean water, and water used for cleaning is removed from a first compartment, for example by wetting a mop, and after mopping the mop is wrung out into the second compartment. As water has been removed from the first compartment and added to the second compartment, water tends to flow from the second compartment, through the filter member, into the first compartment until the water levels are equal thereby replenishing that volume of water. As the "dirty" water flows through the filter, particles of dirt are prevented from passing into the first compartment, the water in which remains relatively clean.

Preferably, the filter member is removable and thus may be readily cleaned or replaced.

The container may be in the form of a bucket or pail provided with a removable or fixed partition to divide the container into two compartments. When the portion is removable it may be made of a suitable filtering material so as to form the filter member. An attachment to facilitate wringing out of mops and the like may be provided above one of the compartments.

This and other aspects and the present invention will now be described, by way of example, with reference to the accompanying drawing, in which;

Figure 1 is a perspective view of a liquid container in accordance with a preferred embodiment of the present invention; and

Figure 2 is a sectional view on line 2-2 of Figure 1.

The drawing illustrates a liquid container in accordance with a preferred embodiment of the present invention in the form of a twin compartment pail 10. The pail 10 is of substantial construction, having a base 12, an elliptical side wall 14 and a carrying handle 16. Dividing the pail 10 into first and second compartments 18, 20 is a partition member 22 provided adjacent the base 12 with an aperture housing a removable filter 24. Located above the first compartment 18 is a removable mop/drip top 26 having a cone-shaped depression provided with a multiplicity of apertures. Top 26 may be integral with the compartment 20 or may be a releasable attachment.

In use, both compartments 18, 20 are initially filled with water above the level of the filter 24. Water for cleaning is removed from the first compartment 18 while "dirty" water is returned to the second compartment 20. The filter 24 provides a conduit for liquid communication between the compartments 18, 20, such that the level of water in the compartments 18, 20 tends to equalise. Thus, when clean water is removed from the first compartment 18 and later returned, carrying dirt, to the second compartment 20, water tends to flow through the filter 24 into the first compartment 18. As the water



flows through the filter 24, larger particles of dirt are removed from the water, such that the water in the first compartment 18 remains relatively clean. In this manner, a cleaning operation can be continued for a relatively long period without requiring a change of water, thus providing a considerable saving in time and effort, and also permitting more economical use of water.

The filter 24 is removable such that it may be readily cleaned or replaced and may be formed of any suitable fibrous or porous material.

CLAIMS

1. A container for containing liquid, the container comprising two open-topped compartments, and means providing for liquid communication between the compartments when the container is in use, said means incorporating a filter member.

2. A container as claimed in claim 1, wherein the container is formed by a single open-topped housing with an internal portion to divide it into said two compartments, and said means is an aperture in the portion, the filter member being releasably secured over the aperture to the portion.

3. A container as claimed in claim 2, wherein the housing has a generally elliptical cross-sectional shape.

4. A container as claimed in any preceding claim, and including a carrying handle.

5. A container as claimed in any preceding claim, and including an attachment for fitting over the top of one of the compartments, the attachment having a cone-shaped depression which is provided with a multiplicity of apertures for wringing out a mop or the like.

6. A container as claimed in claim 1 and substantially as hereinbefore described with reference to the accompanying drawing.

-7-

**Patents Act 1977**  
**E: Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

Application number

GB 9219444.8

**Relevant Technical fields**

(i) UK Cl (Edition K ) A4A (APE, AK, AG)  
 B8D (DSC1, DSC2)  
 A4F (FHA)  
 A47J

(ii) Int Cl (Edition 5 )

**Search Examiner**

DR C L DAVIES

**Databases (see over)**

(i) UK Patent Office

(ii)

**Date of Search**

10 DECEMBER 1992

Documents considered relevant following a search in respect of claims 1-6

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 1520839 A (VAZQUEZ) see Figure and page 2 lines 41-47	1,2,4,5
X	GB 0606923 A (BROWNLOW) see whole document especially Figure	1,2
X	GB 0556053 A (MACKAY) see Figure 1 and page 1 lines 48-49	1,2,3,4
X	GB 0502511 A (HAWS) see Figure 1 and	1,2,4
X	GB 0398940 A (SMITH) see Figure 4	1,4
X	GB 0334723 A (BROWN) see Figures 1 and 6	1,4
X	US 4161799 A (SORRELLS) see whole document especially column 2 and lines 23-29; lines 49-51	1,2,3, 4,5

Category	Identity of document and relevant passages	Relevant to claim(s).

**Categories of documents**

**X:** Document indicating lack of novelty or of inventive step.

**Y:** Document indicating lack of inventive step if combined with one or more other documents of the same category.

**A:** Document indicating technological background and/or state of the art.

**P:** Document published on or after the declared priority date but before the filing date of the present application.

**E:** Patent document published on or after, but with priority date earlier than, the filing date of the present application.

**&:** Member of the same patent family, corresponding document.

**Databases:** The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).

# (12) UK Patent Application (19) GB (11) 2 323 776 (13) A

(43) Date of A Publication 07.10.1998

(21) Application No 9806730.9

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(31) 9706590

(32) 01.04.1997

(33) GB

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(51) INT CL<sup>6</sup>

A47L 13/58

(52) UK CL (Edition P)

A4F F36

(56) Documents Cited

None

(58) Field of Search

UK CL (Edition P) A4F F0MW F0MX F36

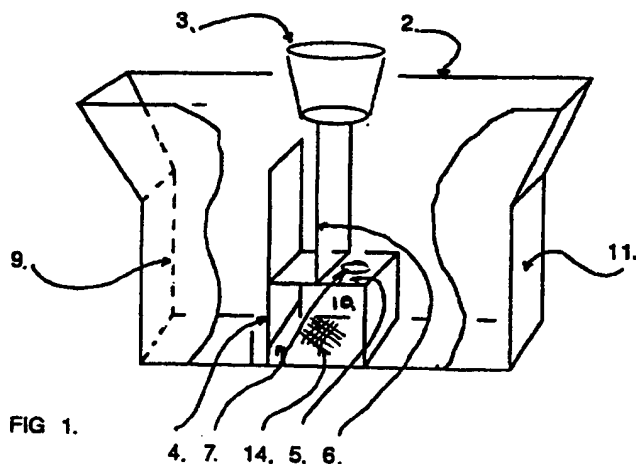
INT CL<sup>6</sup> A47L 13/58 13/59 13/60

Online: WPI

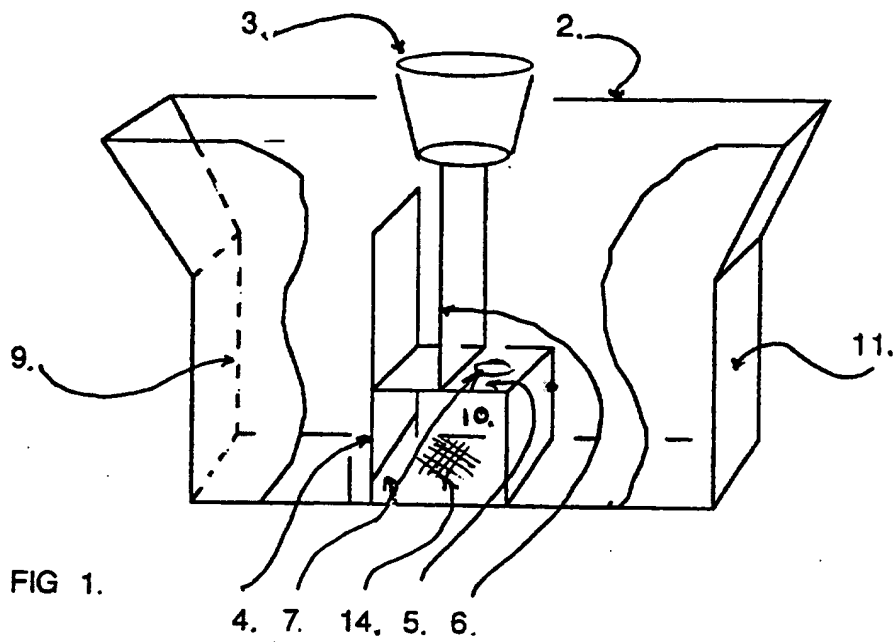
(54) Abstract Title

**A mop bucket with a filter**

(57) A mop bucket is divided into two main compartments 9, 11 by a partition 4. Within compartment 11 is a filter compartment 10 containing a resilient filter 14. The filter compartment has an aperture 7 in a wall, which in the embodiment is common with the partition wall, this aperture communicating with the compartment 9. The upper end of the filter compartment is closed by a movable compression plate 5 which has apertures 7 for allowing entry of liquid from compartment 11. Mounted above the filter compartment on two guides is a mop wringing device 3. The arrangement is such that the container is filled in both compartments 9, 11 to below the top of the partition 4. The mop is wetted in compartment 11 and wrung out in device 3. By pressing down on device 3 the compression plate compresses the filter and cleaning solution is forced through the filter and into compartment 9 via the communicating aperture 7. Subsequent wringing of the mop causes dirt to be filtered out of the cleaning solution and thus there is always clean solution available in compartment 9 for mopping. The wringing device may be of the mechanical sort.



GB 2 323 776 A



MOP BUCKET

MOP BUCKET  
BACKGROUND AND SUMMARY OF THE INVENTION

Mop Buckets are well known and are used in the cleaning of surfaces, they comprise of a receptacle for fluid and a mop squeezer for the extraction of fluid from the mop.

MOPPING PROCEDURE.

- 05 The procedure for single solution mopping requires the operative to soak the mop and squeeze the excess fluid out then proceed to mop the floor surface, rinse the mop in the same solution, then squeeze the dirty solution from the mop. This action is repeated frequently, consequently the solution soon becomes filthy and  
10 hygiene standards are compromised.

- It has been well known in the prior art to divide a bucket into two compartments, one for washing and the other for rinsing, also to connect them via a passage as in Sorrells U.S. 4161799 to facilitate displacement, also the use of a static filter member  
15 across the aperture as in Mcluskie G.B.2260691 the systems being gravity fed from dirty to clean.

- None the less known are circulatory systems as in Nichols U.S. 1326682 where the water is electrically pumped up through a static filter in to a diffuser and as in Vazquez G.B. 1520839 a  
20 spring loaded device elevates the water through a static filter to a bowl like drainer

- The present invention provides the means of a resilient filtration, the filter is located in a compartment at the base of the bucket, covered by a compression plate, when the plate is  
25 depressed a volume of water surges through the filter and via apertures in to the 'Dip' compartment, to such an extent that the water in the 'Dip' compartment may exceed, in height, that of the rinse compartment and ebbing may take place from clean to dirty. The surge and ebbing action facilitates secondary filtration when  
30 the plate is again depressed.



This invention concerns a mop bucket and more particularly such apparatus of the kind comprising of three compartments, the smaller of which is suitable for a resilient filter and a compression plate with apertures for the directional movement of fluid.

- 05 When the compression plate is depressed against the resilient filter the fluid contained therein is forced through the filter and out through apertures in to the adjacent 'dip' compartment.

- 10 A mop squeezing device maybe releaseably connected to the compression plate via elongate guide means, additionally the preferred squeezer is not restricted in movement up or down and may be depressed by direct physical pressure, via a mop and handle or through other mechanical means.

- 15 When pressure is removed the resilience of the filter raises the compression plate to its original position and at the same time fills with solution, a succession of this 'surge action' raises the level of fluid in the adjacent 'dip' compartment, upon secession 'ebbing' from the 'dip' compartment takes place, facilitating secondary filtration.

- 20 A further and clearer understanding of the invention will now be described by way of example with reference to a embodiment.

FIGURE 1. schematically illustrates the relevant embodiment.

The embodiment of figure 1.

- 25 comprises bucket body 2.; mop squeezer device 3.; division panel 4.; compression plate 5.; squeezer guides 6.; filter apertures 7.; resilient filter 14.; compartment 9.; compartment 10.; compartment 11.

3.

05 According to the present invention there comprises a bucket, sub divided in to three compartments, compartment 9 for filtered solution, compartment 10 contains a resilient filter and compression plate, compartment 11 has provision for the squeezer device and sump.

The bucket is filled to the appropriate level in both compartment 9 and 11. that being a level above compartment 10 but below the hight of the division panel 4.

10 The operative soaks the mop in the sump compartment 11. and squeezes the excess out in the squeezer 3. the pressure exerted, either physical or mechanical is transferred via the guide means 6. to the compression plate 5. and forces the solution through the filter in compartment 10, and through apertures into compartment 9.

15 The operative would then use solution from compartment 9 to mop the surface, returning to rinse the mop in compartment 11 then starts the whole process again.

## CLAIMS

While the invention has been described with particular reference to the illustrated embodiment, it is not intended to be limited thereby, and is in fact capable of variation within the scope of the appendant claims.

- 05 Claim 1. An open top container having a bottom and enclosing walls, vertical partition means within the container for dividing the bucket as to form a filter compartment with directional aperture at the base, a resilient filter therewith covered by a compression plate, therein directional apertures, and operable by
- 10 direct pressure.
- Claim 2. A container as claimed in claim 1. wherein vertical guide means are located as to direct pressure from a mop squeezer to the compression plate.
- Claim 3. A container as claimed in claim 1. and 2. wherein a mop squeezer is releasable connected with the compression plate and
- 15 has unrestricted vertical movement up and down.
- Claim 4. A container as claimed in claims 1. 2. 3. wherein the compression plate is depressed by the use of physical or mechanical means.
- 20 Claim 5 A container as claimed in claim 4 that has a handle and or wheels for the ease of movement. (not shown).





## IMPROVEMENTS IN OR RELATING TO CLEANING APPARATUS

The present invention relates to improvements in or relating to cleaning apparatus, in particular to buckets (hereinafter referred to as 'mop buckets') for use with mops and similar articles for cleaning floors.

Conventional mop buckets comprises a reservoir for water and means positioned above the reservoir adapted to allow removal of excess water from a mop head placed therein. Such means are typically referred to as 'wringers.' For example, in a typical mop bucket for household use, the wringer comprises a perforated, generally conically shaped bowl. In use, water is placed into the reservoir, a mop is wetted by being placed in the reservoir and is then placed into the perforated bowl. Excess water is removed by applying downward pressure to the mop via its handle together with twisting of the mop in the perforated bowl. Mop buckets for commercial use commonly include a system of perforated panels between which the wetted mop is placed. Pressure is applied to the mop between the panels, typically by means of a lever, bringing the panels closer together, thereby squeezing water from the mop.

A problem with existing mop bucket arrangements is that once the mop has been used to clean an area of the floor, it is placed into the reservoir of water again to re-wet it prior to cleaning another area of the floor. Very quickly, the water in the reservoir becomes dirty with the result that the water must be changed frequently. In practice, however, the result is that excessively dirty water is used to wash the floor.

The present invention seeks to overcome this problem with the prior art.

In its broadest sense, there is provided a vessel for use with a mop or similar floor-cleaning apparatus, the vessel comprising first and second fluid reservoirs in fluid communication through a filter element, the vessel further comprising draining means adapted for use in draining excess fluid from a mop.

Preferably, the filter element is removable.

Suitably, the filter element comprises a filter element case having an inlet and an outlet defining a fluid flow path and a filter is provided in the fluid flow path. Suitably, the filter comprises an open-cell foamed material. Preferably, the filter has a plurality of regions of different porosity or includes additional components of different porosity from the foamed material.

Preferably, each reservoir includes a sump filter. Suitably each sump filter comprises a perforated sheet.

10 In one embodiment, the draining means comprises a generally conically shaped bowl having a plurality of perforations therein.

In an alternative embodiment, the draining means comprises two opposed perforated plates or grilles movable with respect to each other between a first position in which the plates or grilles have a first separation and a second position in which the plates have a second separation, at least a portion of said second separation being greater than said first separation.

Preferably, the draining means includes a deflector element adapted to direct a flow of fluid into said first reservoir.

20

The above and other aspects of the present invention will now be described in further detail with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a first embodiment of a vessel in accordance with the present invention;

25

Figure 2 is an elongate cross-section through the vessel of Figure 1 in a first configuration;

Figure 3 is an elongate cross-section through the vessel of Figure 1 in a second configuration;

30

Figure 4 is a part cut-away perspective view of the embodiment of Figure 1;

Figure 5 is a cross section through a second embodiment of a vessel in accordance with the present invention;

Figure 6 is a perspective view of a first embodiment of a partly assembled filter assembly  
5 suitable for use with the embodiment of Figure 1 or Figure 5;

Figure 7 is a cross-section through the filter assembly of Figure 6;

Figure 8 is a partly exploded perspective view of the filter carrier element of Figure 6;  
10

Figure 9 is a first perspective view of a second embodiment of a partly assembled filter assembly suitable for use with the embodiment of Figure 1 or Figure 5;

Figure 10 is a second perspective view of the filter assembly of Figure 9;  
15

Figure 11 is a perspective view of a third embodiment of a filter element suitable for use with the embodiment of Figure 1 or Figure 5; and

Figures 12 to 14 are schematic plan views of alternative reservoir arrangements.  
20

Figures 1 to 4 illustrate a first embodiment of a vessel in accordance with the present invention in the form of a mop bucket 10 of generally rectangular plan form with a carrying handle 11 and a wringer 12. Wringer 12 is of the type described above comprising a generally conically shaped bowl 13 having a plurality of perforations 14 and rests upon the  
25 upper rim of the bucket 10.

Bucket 10 is divided into first and second reservoirs 15,16 for water (which will typically contain one or more cleaning agents). First and second reservoirs are in fluid communication through a filter element 20, which will be described in further detail in due course.  
30

The wringer 12 is provided with a deflector 21 which receives water from the wringer bowl 13 through perforations 14. As can be seen from a comparison of Figures 2 and 3, in a first



configuration (Figure 2) wringer 12 is positioned at a first end of bucket 10, above the first reservoir 14; and in a second configuration (Figure 3), wringer 12 is positioned above the second reservoir 15 at the second end of the bucket. However, in each configuration, the deflector acts to direct water from the wringer bowl 13 into the first reservoir only.

5

Typically, the deflector includes a channel or pipe to direct the flow of water into the desired reservoir 15,16.

As is already known, preferably a sump filter 22 is provided in each reservoir 15,16. Sump  
10 filter 22 is typically a perforated plate or a grid or grille and is spaced from the bottom of each reservoir. The sump filter 22 allows larger particulate matter 23 to pass through, but acts to prevent the mop, when placed in the reservoir, from contacting the particulate matter, thereby transferring it to the mop and thence, in use, to the floor.

15 To assist in an understanding of the present invention, uses of this embodiment will now be described. At the commencement of a cleaning operation, first and second reservoirs 15,16 are filled with water to a level a little below the upper edge of filter element 20. With reference to Figure 2, a mop head 30 is inserted into second reservoir 16. The mop head 30 is then placed in bowl 13 of the wringer and excess water removed. The mop is then used to  
20 clean the floor. The mop is then inserted into first reservoir 15, it being appreciated that the whole assembly is designed such that wringer will not obstruct access to the first reservoir, and washed in the water. The water in reservoir 15 will thus become dirtied. The mop is then replaced into the wringer 13 and excess water (dirty) removed. The water will drain along deflector 21 into first reservoir 15. The mop is then inserted into the clean water of  
25 second reservoir 16 for rinsing, wrung in wringer 13 and used again to clean an area of floor.

It will be appreciated that the wringing operation will increase the volume of water in first reservoir 15 and thus an imbalance of water depth in the two reservoirs 15,16. Excess water in first reservoir 15 is thus caused to pass through filter element 20 into second reservoir to  
30 equalise the water levels. Filter element 20 acts to remove particulate matter suspended in the water such that the water in second reservoir 16 remains considerably cleaner than that in first reservoir 15.

The apparatus may also be used in a slightly modified fashion and is illustrated initially with reference to Figure 3. It will be observed that the wringer assembly is mounted upon the bucket 10 above second reservoir 16. Rather than washing the mop head in first reservoir 15 and rinsing in second reservoir 16, a user may prefer to use just the first reservoir 15 for washing the mop head 30 until such time as the water becomes too dirty. At that stage, the wringer assembly is removed and placed over the first reservoir 15. The user can then continue mopping a floor using water from second reservoir 16. It will be observed that dirty water draining from the wringer 13 continues to be directed into first reservoir 15. Accordingly, the water entering second reservoir 16 continues to be filtered through filter element 20 and remains cleaner as a result.

An alternative embodiment is illustrated in Figure 5. As is commonplace in commercial mop buckets, wringing of a mop head 30 is achieved by squeezing the mop head 30 between two perforated plates or grilles 31,32. In the embodiment shown, the plates 31,32 are pivotally joined at their lower ends. Alternative arrangements are well known, for example, in which the plates remain generally parallel with respect to one another and are brought into closer proximity to provide the squeezing action. As in the first embodiment described above, the vessel 40 is divided into first and second chambers or reservoirs 41,42 by means of a filter element 44 allowing fluid communication therebetween. Sump filter grilles 43 are provided in each reservoir in the conventional manner. A deflector plate 45 directs water wrung from the mop head into second reservoir 42. In use, the mop head is washed in second reservoir 42, wrung between plates 32,32, rinsed in the water of first reservoir 41, wrung again and then used to clean the floor. Thus the water in the second reservoir 42 contains the bulk of the dirt removed from the floor and water in first reservoir 41 remains considerably cleaner, being filtered through filter element 44 as it passes through from second reservoir 42.

Figures 6 to 8 illustrate one example of a filter element 20,44. Filter element 20,44 includes a filter case 50 having an inlet 51 with a grille 52 to prevent ingress of large particulate matter and an outlet 53, also having a grille. The filter element further includes a filter carrier 54 comprising a plate 55 dividing filter case 50 and defining a fluid flow path between the inlet and the outlet of the filter element. Upon each face of the filter carrier 54 are mounted open-

cell foamed plastics filters 60,61, supported in place by means of retaining pegs 62, one at each corner and each face of the filter plate 55, engaging corresponding apertures 63 within each foam filter 60,61. As shown, preferably, each foam filter 60,61 is formed from two or more foam filter elements each having different porosities, thereby acting as a multiple-stage  
5 filtration system. The foam filters 60,61 are easily removable from the apparatus at the end of a cleaning operation, and cleaned by rinsing under running water or in a washing machine.

An alternative filter element design is illustrated in Figures 9 and 10. As described above, the filter element includes a filter case 70 having inlet and outlet grilles as described above and,  
10 in this embodiment, having a closable lid 71, coupled to case 70 by a hinge 72. Typically, filter case 70, lid 71 and hinge 72 are formed as a unitary component by injection moulding of a plastics material. A central open-cell foamed filter 73 is sandwiched between a pair of lower porosity paper or felt filters 74.

15 Figure 11 illustrates a yet further alternative filter element. The filter element comprises a filter case 80, typically of an injection moulded plastics material, comprising two mating halves 81,82. Each half 81,82 includes a generally circular recessed portion for receipt of a filter disc 83. Each filter case half includes a plurality of apertures 84 to provide an inlet and outlet to the filter element. Filter disc 83 comprises an open-cell foamed plastics material 85  
20 supported by a circular ring 86 and is rotatable in filter case 80 such that as, in use, the filter portions exposed to the flow of water flowing from the inlet to the outlet become dirty, the filter disc can be rotated to present a clean area of filter.

Alternative filter arrangements and constructions will be readily apparent to those skilled in  
25 the art. For example, the porosity of the filter components of the filter element may be selected to allow a preferential flow of water in one direction.

The apparatus of the present invention may include more than two reservoirs. For example, the apparatus may include three reservoirs, which may be arranged (Figure 12) with a central  
30 reservoir 90 in fluid communication through respective filter elements 91 with a reservoir 92,93 on each side thereof, or which may be arranged (Figures 13,14) radially about a common central point. In this arrangement two of the reservoirs 95,96 are in fluid

communication with the mutually adjacent reservoir 97 through respective filter elements 98. Reservoirs 95,96 may also be in mutual fluid communication through a further filter element 98 (Figure 14) or fluid communication between said reservoirs may be prevented (Figure 13). The wringer assembly and deflector will be modified as necessary to suit the arrangement of  
5 reservoirs provided.

It will be appreciated that the apparatus of the present invention allows water to be kept cleaner for longer whilst washing floors. This reduces the amount of time needed to repeatedly renew the water during use, reduces the water requirement and also that for  
10 additive detergents etc.

## Claims.

1. A vessel for use with a mop or similar floor-cleaning apparatus, wherein the vessel comprises first and second fluid reservoirs in fluid communication through a filter element,  
5 and the vessel further comprising draining means adapted for use in draining excess fluid from a mop.
2. A vessel as claimed in claim 1 wherein the filter element is removable.
- 10 3. A vessel as claimed in Claim 1 or Claim 2 wherein the filter element comprises a filter element case having an inlet and an outlet defining a fluid flow path and a filter is provided in the fluid flow path.
- 15 4. A vessel as claimed in Claim 3 wherein the filter comprises an open-cell foamed material.
5. A vessel as claimed in Claim 3 or Claim 4 wherein the filter has a plurality of regions of different porosity
- 20 6. A vessel as claimed in Claim 3 or Claim 4 wherein the filter comprising a plurality of filter components, adjacent in the fluid flow path, each having different porosity from the adjacent component.
7. A vessel as claimed in any one of claims 1 to 6 wherein each reservoir includes a  
25 sump filter.
8. A vessel as claimed in Claim 8 wherein each sump filter comprises a perforated sheet or grille.
- 30 9. A vessel as claimed in any one of claims 1 to 8 wherein the draining means comprises a generally conically shaped bowl having a plurality of perforations therein.

10. A vessel as claimed in any one of claims 1 to 8 wherein the draining means comprises two opposed perforated plates or grilles moveable with respect to each other between a first position in which the plates or grilles have a first separation and a second position in which the plates have a second separation, at least a portion of said second separation being greater  
5 than said first separation.

11. A vessel as claimed in Claim 10 wherein the first and second plates or grilles are pivotally mounted with respect to each other.

10 12. A vessel as claimed in any preceding claim wherein the draining means includes a deflector element adapted to direct a flow of fluid into said first reservoir.

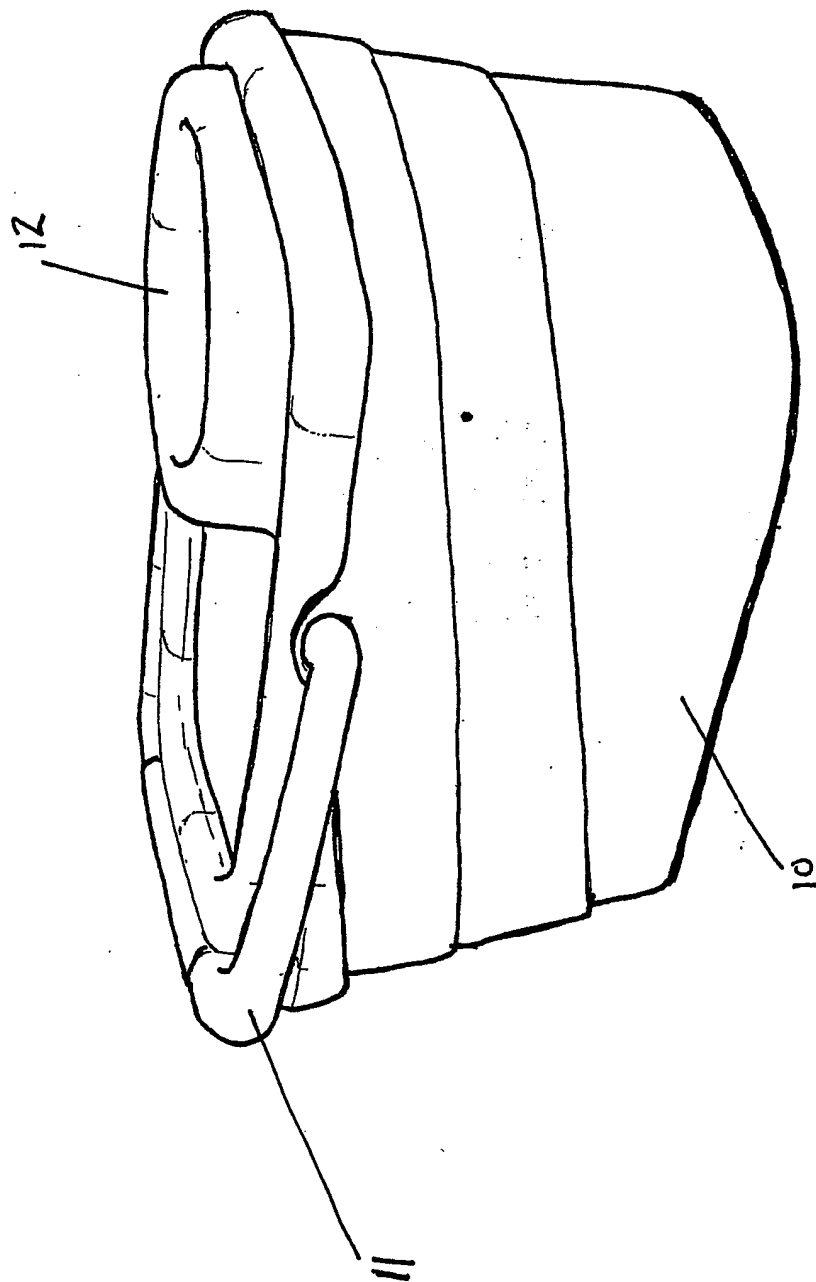


FIGURE 1





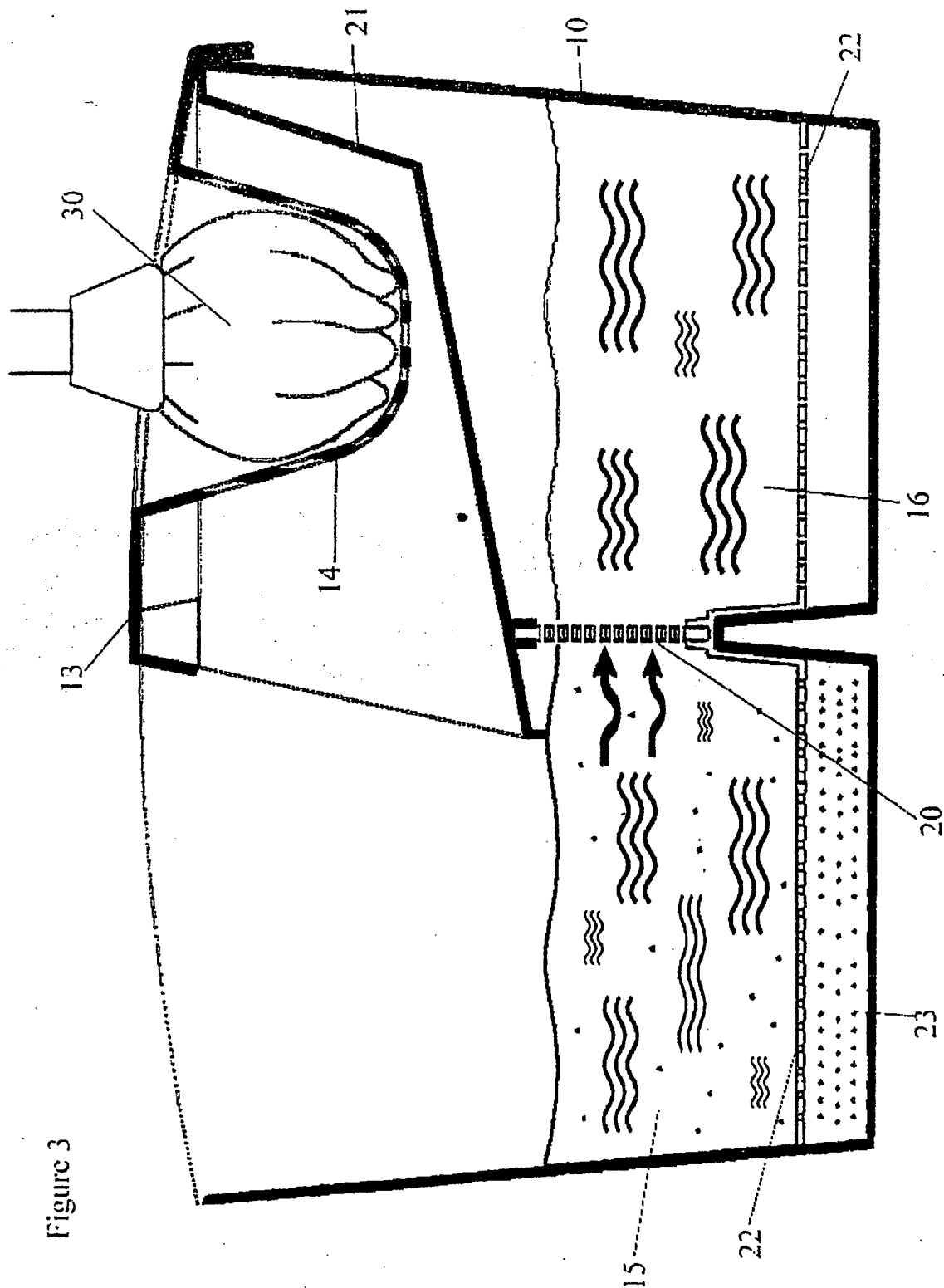


Figure 3

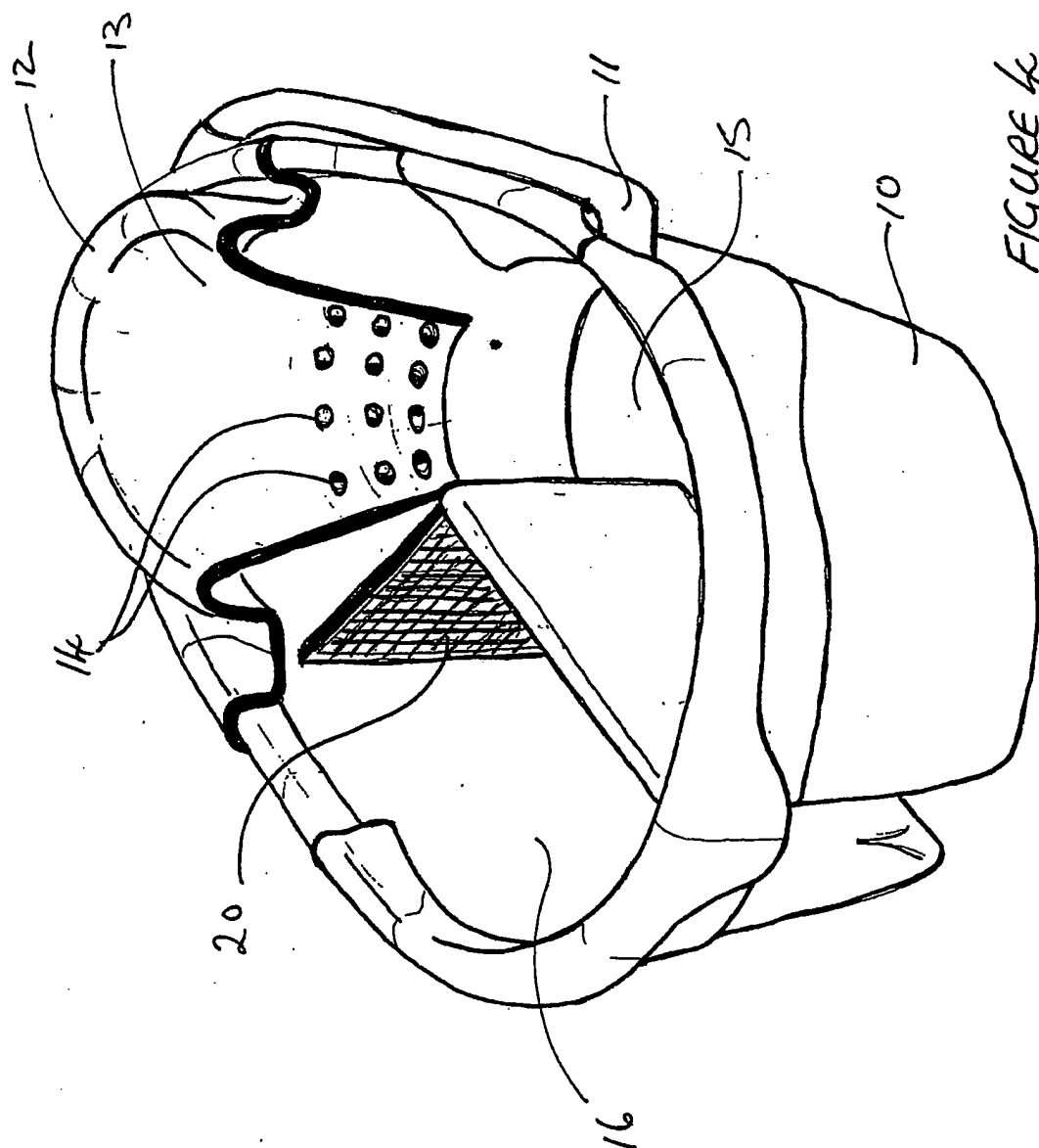


FIGURE 4

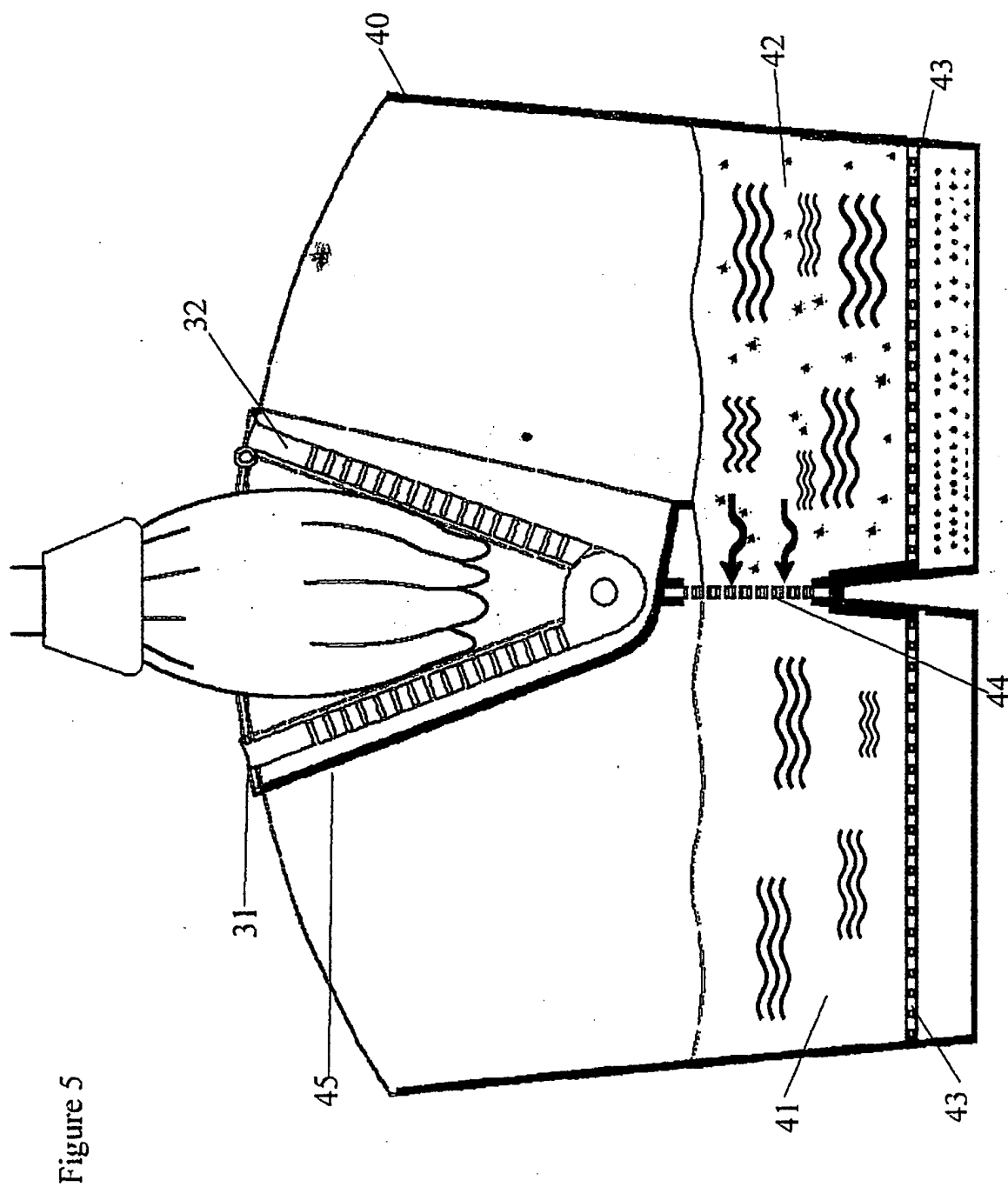
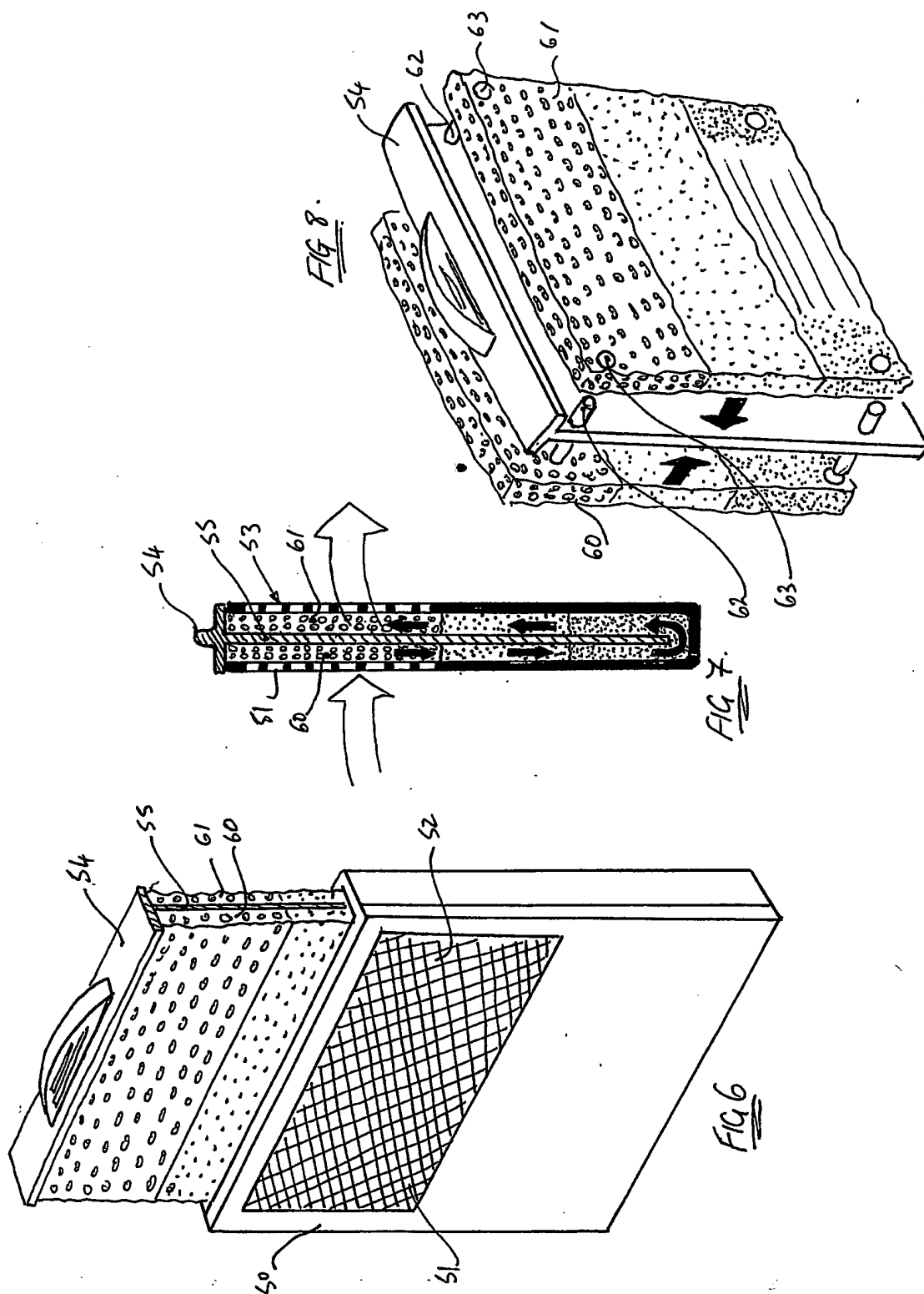
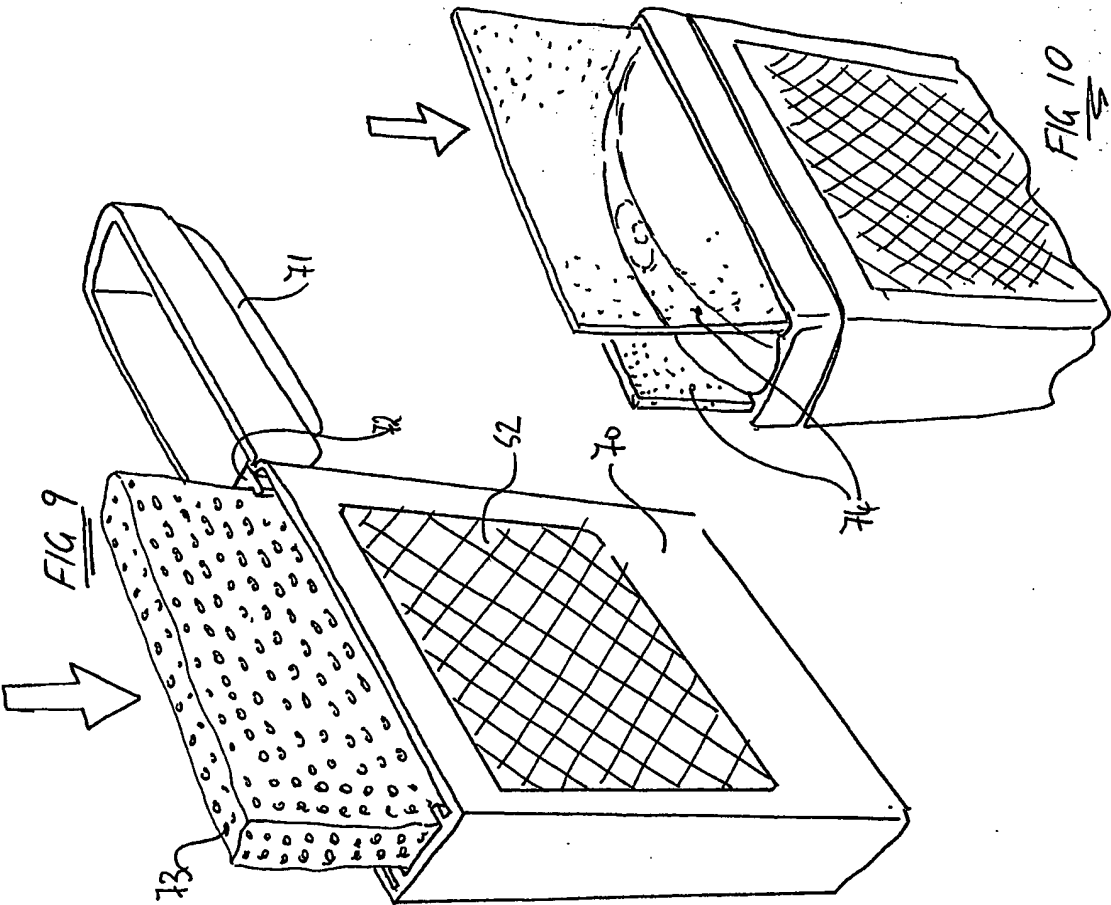
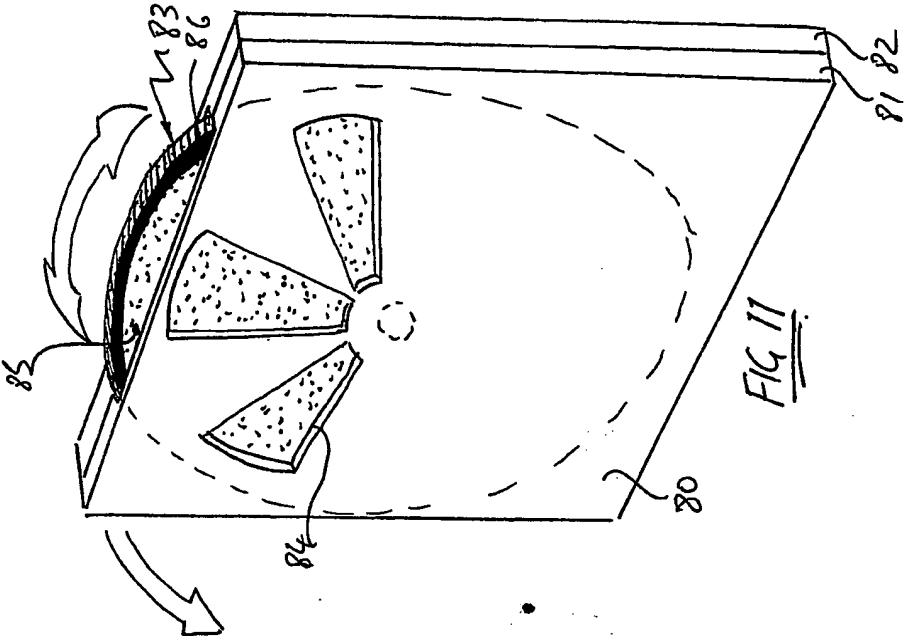


Figure 5





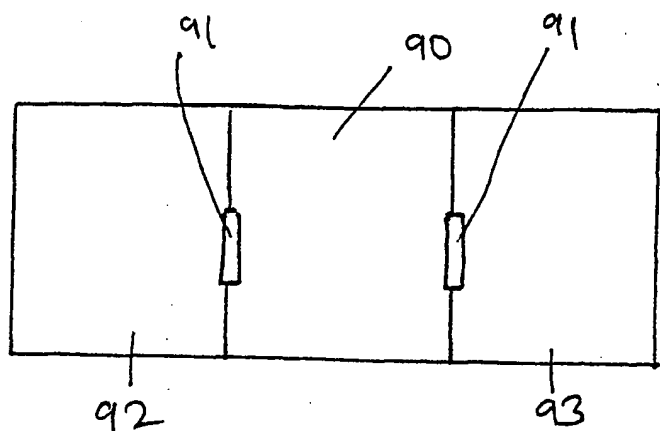


FIGURE 12

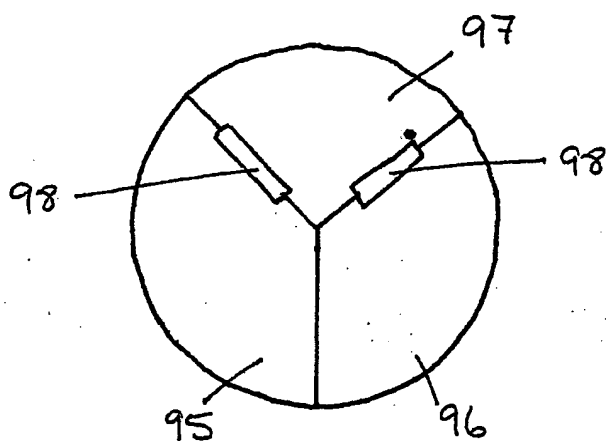


FIGURE 13

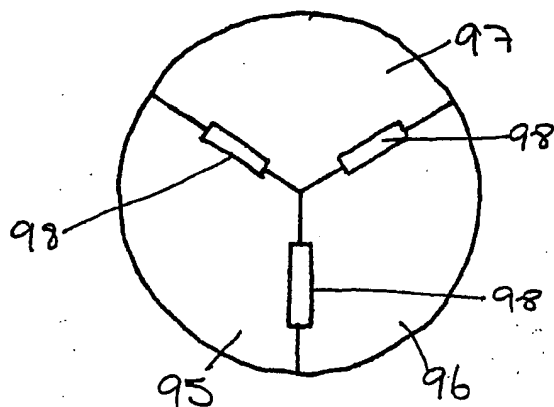


FIGURE 14

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB 03/00541

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A47L13/58

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 260 691 A (J. MCLUSKIE) 28 April 1993 (1993-04-28) page 1, paragraph 4 -page 2, paragraph 3 page 3, paragraph 3 -page 4, paragraph 2 claims; figures	1,2,9
X	US 6 279 195 B1 (B. S. BIGGS) 28 August 2001 (2001-08-28) column 3, line 59 - line 64 column 4, line 30 - line 46 column 5, line 4 -column 6, line 8 claim; figures 1,2,5	1,2,10, 11
Y A		3-8,12 5,6

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

24 June 2003

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## INTERNATIONAL SEARCH REPORT

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 000 094 A (SCOT YOUNG RESEARCH, INC.) 14 December 1999 (1999-12-14) column 2, line 3 - line 14 column 2, line 46 - column 3, line 20 column 3, line 43 - line 45 column 4, line 5 - line 11 claim 1; figures	3-6
Y	US 2 712 668 A (H. L. THIELE) 12 July 1955 (1955-07-12) column 1, line 56 - column 2, line 1 claim 1; figures	7,8
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

Interi nal Application No

PCT/GB 03/00541

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## **NEW CENTRAL FAX NUMBER**

Effective July 15, 2005

On July 15, 2005, the Central FAX Number will change to **571-273-8300**. This new Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus.

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